



# **Using CDRs in Monitoring and Assessment**

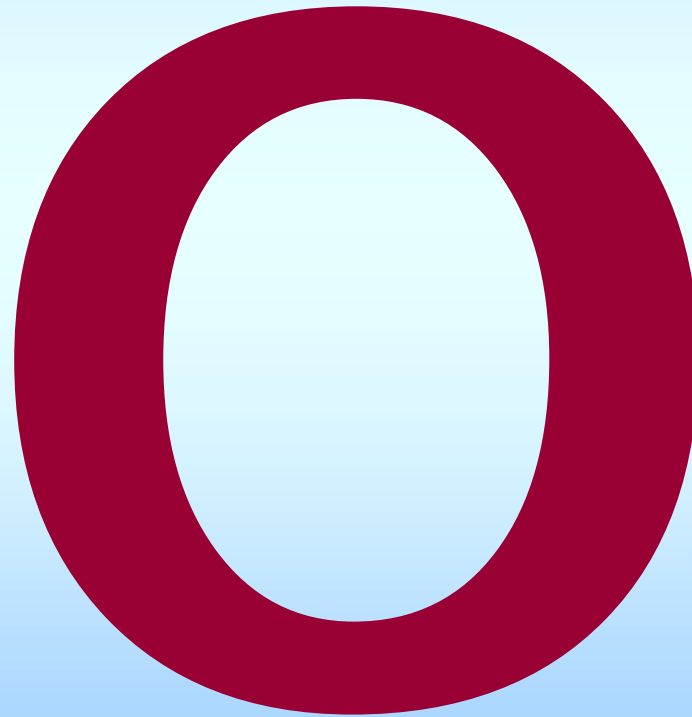
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# Climate Monitoring & Assessment



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Immediacy

## Monitoring

- Relevant
- Timely
- Review before product

## Lots of Overlap

Climate indicators  
Regional awareness  
Sectoral awareness  
Sustained/Annual assessments

## Assessment

- Thoughtful
- Comprehensive
- Review of product

Shelf Life

- Mission: monitor and assess the state of the climate
  - Document
  - Describe
  - Differentiate
  - Understand & Anticipate

## June 2012 Selected Climate Anomalies and Events

# Climate Monitoring

## ■ Activities

- Many regular reports
- Many “standing products”
- Occasional articles (formal and informal)
- Occasional synthesis efforts

**Climate Monitoring**  
National Oceanic and Atmospheric Administration  
National Climatic Data Center

**August Heat Wave**  
The mean temperature for August (75.7°F/24.3°C) was the second warmest on record. [National Overview](#) » [Climate Report](#) » [August Rank Maps](#) »

- State of the Climate
- U.S. Products
- Global Products
- Drought Monitoring
- U.S. and Global Extremes
- Hurricanes/Tropical Storms
- Tornadoes
- Snow and Ice Data
- Climate Information Record Data
- Special Reports
- Other Products
- Climate and Network Monitoring

**State of the Climate**  
Monthly State of the Climate Report  
[RSS Feed](#) [XML](#)  
National Section

- National Overview
- Drought
- Wildfires
- Hurricanes & Tropical Storms
- National Snow & Ice
- Tornadoes
- Synoptic Discussion

Bulletin of the American Meteorological Society (BAMS) Annual State of the Climate Report

Global Section

- Global Analysis
- Upper Air
- Global Snow & Ice
- Global Hazards

**U.S. Products**

- Climate At A Glance
- Temperature and Precipitation Maps
- Weekly Maps
- Daily ASOS Maps
- Societal Impacts
  - Crop Moisture Stress Index (CMSI)
  - Residential Energy Demand Temperature Index (REDTI)
  - Air Stagnation Index
  - Convective Sigmet (CSIG)
  - U.S. Wind Climatology

**Global Products**

- Global Climate At A Glance
- Global Temperature Anomalies
- Global Temperature and Precip: 2011 [View Report](#) »
- Monthly Teleconnection Indices
- El Niño / Southern Oscillation (ENSO)
- Weekly Sea Surface Temperature Maps
- Sea Surface Temperature Datasets
- Extended Reconstructed SST Version 3b Dataset: (ASCI)
- MSU Upper Air
- In Situ Upper Air (RATPAC)

**DROUGHT**  
**Drought Monitoring**

- Current U.S. Drought Monitor Map
- North American Drought Monitor
- National Integrated Drought Information System (NIDIS)
- Drought Monitoring Tools
- Drought Termination in the U.S.
- U.S. Palmer Drought Indices
  - Weekly Index
  - Current Monthly Index
  - Historical Palmer Maps
  - Historical Palmer Data Files
  - Original Palmer (1965) Article (PDF)
  - Modified Palmer Index (1991) Article (PDF)
- U.S. Standardized Precipitation Index
- U.S. State & Regional Precipitation Status
- Drought Workshops

**EXTREMES**  
**U.S. and Global Extremes**

- ThreadEx
- U.S. Climate Extremes Index (CEI)
- National Climate Extremes Committee (NCEC)
- Global Hazards and Extremes
- North America Climate Extremes Monitoring
- Extreme Weather and Climate Events
- U.S. Records
- Extreme Climates in the U.S.

**TROPICAL CYCLONES**  
**Hurricanes/Tropical Storms**

- Tropical Cyclone Summaries by Basin
- Atlantic Hurricane Climatology
- Hurricanes Maps and Special Reports
- International Best Track Archive for Climate Stewardship (IBTRACS)

**TORNADOES**

- Tornado Climatology
- Tornado Myths, Facts and Safety

**SNOW & ICE**  
**Snow and Ice Data**

- U.S. Snow Monitoring
- U.S. Snow Climatology
- The Northeast Snowfall Impact Scale (NESIS)
- 2004 SNOW/Data Users' Workshops

**DATA**  
**Download U.S. Temperature, Precipitation, and Drought Data**

- Access Data
- Data Descriptions
  - Divisional
  - Statewide/Regional/National
  - Palmer Drought Indices

**SPECIAL REPORTS**  
**Special Reports**

- Spring 2011 U.S. Climate Extremes
- 2009-2010 Cold Season
- Midwestern U.S. 2008 Flood Overview
- August 2007 U.S. Heatwave
- April 2007 U.S. cold event
- Hurricane Wilma
- Hurricane Rita
- Hurricane Katrina
- July 2000 Western U.S. Wildfires
- Hurricane Floyd
- July 1999 Midwest Region Climate Report
- Hurricane Mitch

**OTHER**  
**Other Products**

- Did You Know?
- CMB - Frequently Asked Questions
- Global Climate Change Indicators
- Global Climate Change Reports
- Global Surface Temperature Trends
- NSIDC Arctic and Antarctic Sea Ice Climatic Extremes
- U.S. Gridded Population
- Stratospheric Ozone
- U.S. Heat Stress Index Data
- U.S. Air Stagnation Index
- Hazards Support
- U.S. Climate Regions
- U.S. Climate Divisions

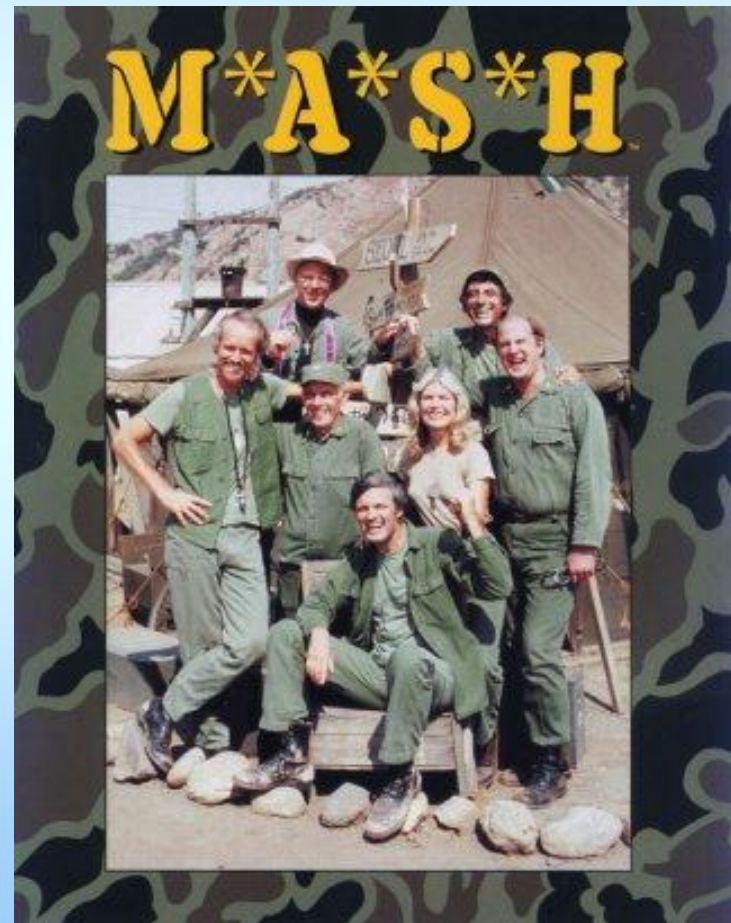
# Climate Monitoring

## Perception



**Point:** with a few exceptions, most of us have developed a generalist approach around our specialties.

## Reality





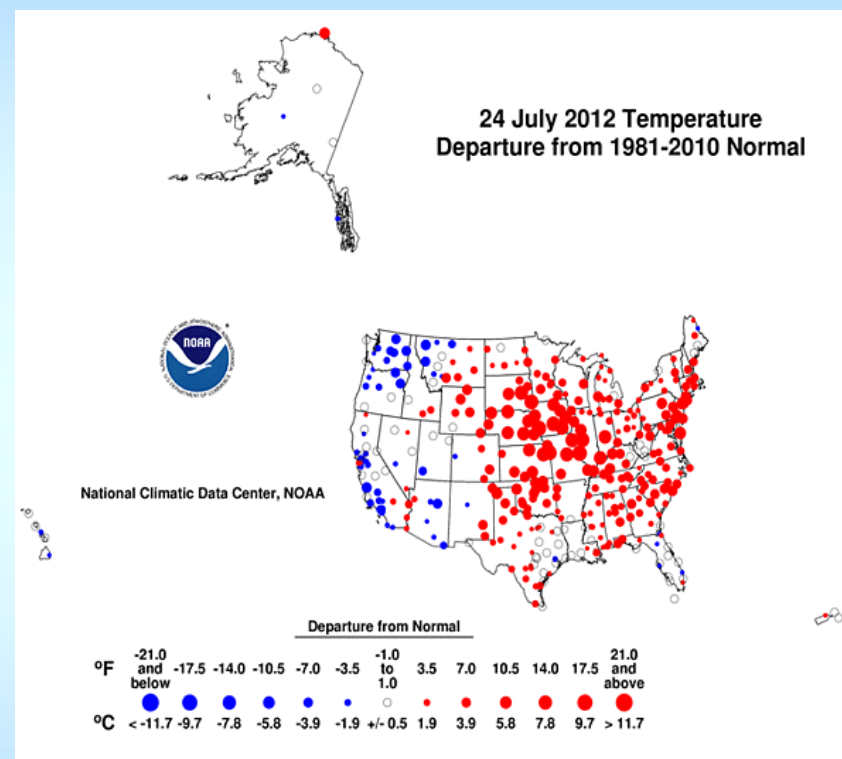
# Monitoring: Life Outside CDRs

## ■ Haves:

- Large-scale representations of temperature, precipitation and derivations thereof
- Lengthy periods of record

## ■ Need:

- Spatial resolution
- Under-served and under-instrumented places
- Impacts



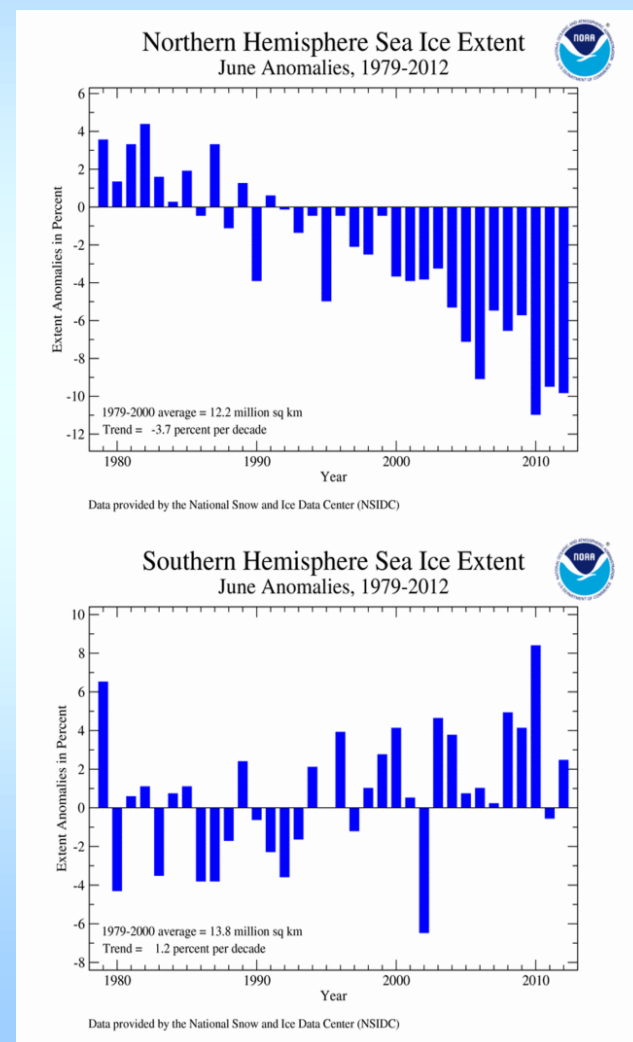
# Aspects of a Monitoring Product

- **Latency**
  - how "real time" is it? 24 hours? 3 days?
- **Frequency**
  - how often is it updated? Daily? monthly? etc.
- **Utility**
  - is it broadly applicable (or more of a more "designer" niche?)
- **Context**
  - absolute or anomaly data? What is the base period? Are these derivations? How stable are the relationships over a range of climate? In which situations does it thrive? In which situations should it defer to other analyses?
- **Resolution**
  - how detailed can/should we get with this?
- **Aggregability in space**
  - can we combine points/pixels into larger chunks (broad-brush) without violating some principles?
- **Aggregability in time**
  - can we combine time steps into larger chunks (broad-brush) without violating some principles?



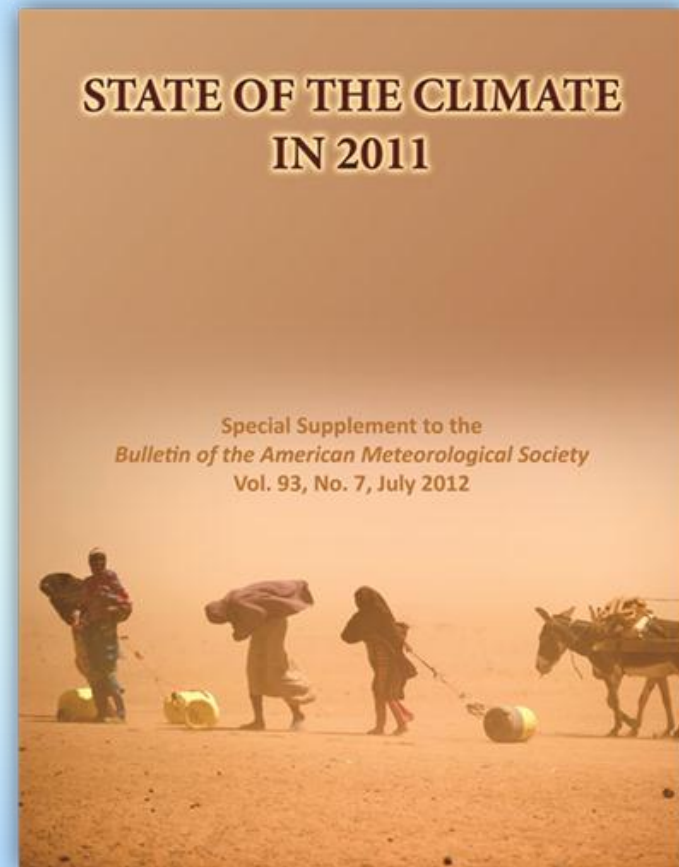
# Incorporating CDRs/CIRs

- Several examples in NCDC's operational monitoring suite
  - Sea-ice extent
  - SST
  - Snow cover extent
  - MSU-based temperatures



# BAMS State of the Climate in 2011

- Ch. 1 sidebar (Bates & Privette) to educate AMS members on current and future roles of CDRs
- Several CDRs entrenched through the doc
  - Sea Ice Extent; Mean-Layer Temperature; SST
- SoC leadership keen to add more ECV CDRs as they become operational, to enhance future global assessments



# How a Monitoring Product Succeeds

- It is timely
- It has appropriate resolution
- It lends itself well to notions of “unusualness”
- Its parts can be aggregated/composited with a straight face
- It is vetted, published, cited
- It has an available expert
- Its operational stewards know the product